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## DEMENTIA AND ALZHEIMER'S DISEASE

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**Effects of chronic administration of Memantine on okadaic acid induced spatial short-term memory impairment**Mariam Chighladze<sup>1</sup>, Manana Dashniani<sup>1</sup>, Maia Burjanadze<sup>1</sup> and Khatuna Rusadze<sup>2</sup><sup>1</sup>Ivane Beritashvili Center of Experimental Biomedicine, Georgia<sup>2</sup>Akaki Tsereteli State University, Georgia

Alzheimer's Disease (AD) is a neurodegenerative disease that causes progressive cognitive and behavior impairment in the elderly. It is widely believed that changes in the cerebral activity of protein phosphatases have been implicated in the pathogenesis of AD. Okadaic Acid (OA) is a potent and selective inhibitor of protein phosphatases. OA induced memory deficit and elevation of Ca<sup>2+</sup> was found to be correlated with neurotoxicity and N-Methyl-D-Aspartate (NMDA) receptor emerged as a plausible link. According to available data, the NMDA receptor antagonists (including memantin) have the potential to perform neuroprotective role in neurodegenerative processes caused by Ca<sup>2+</sup> ionotoxicity. In the present study, the possible beneficial effect of memantine on the OA induced spatial short-term memory impairment was examined in spatial alternation task. OA was dissolved in artificial Cerebro-Spinal Fluid (aCSF) and injected Intra Cerebro Ventricularly (ICV) 200 ng in a volume of 10 µl bilaterally. Vehicle control received aCSF ICV bilaterally. Control and OA injected rats were divided into two subgroups injected i.p. with saline or memantine (5 mg/kg). Memantine or saline were given daily for 13 days starting from the day of OA injection. Behavioral study showed that bilateral ICV microinjection of OA induced impairment in spatial short-term memory and chronic administration of memantine effectively attenuated OA induced spatial short-term memory impairment. Therefore, ICV injection of OA can be used as an experimental model to study mechanisms of neurodegeneration and define novel therapeutics targets for AD pathology.

**Biography**

Mariam Chighladze has completed her PhD from St Andrew the First-Called Georgian University of the Patriarchate of Georgia. She is the Laboratory Assistant at Ivane Beritashvili Center of Experimental Biomedicine, Laboratory of Behavior and Cognitive Functions. She has published more than four papers.

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